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DATAMATION

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

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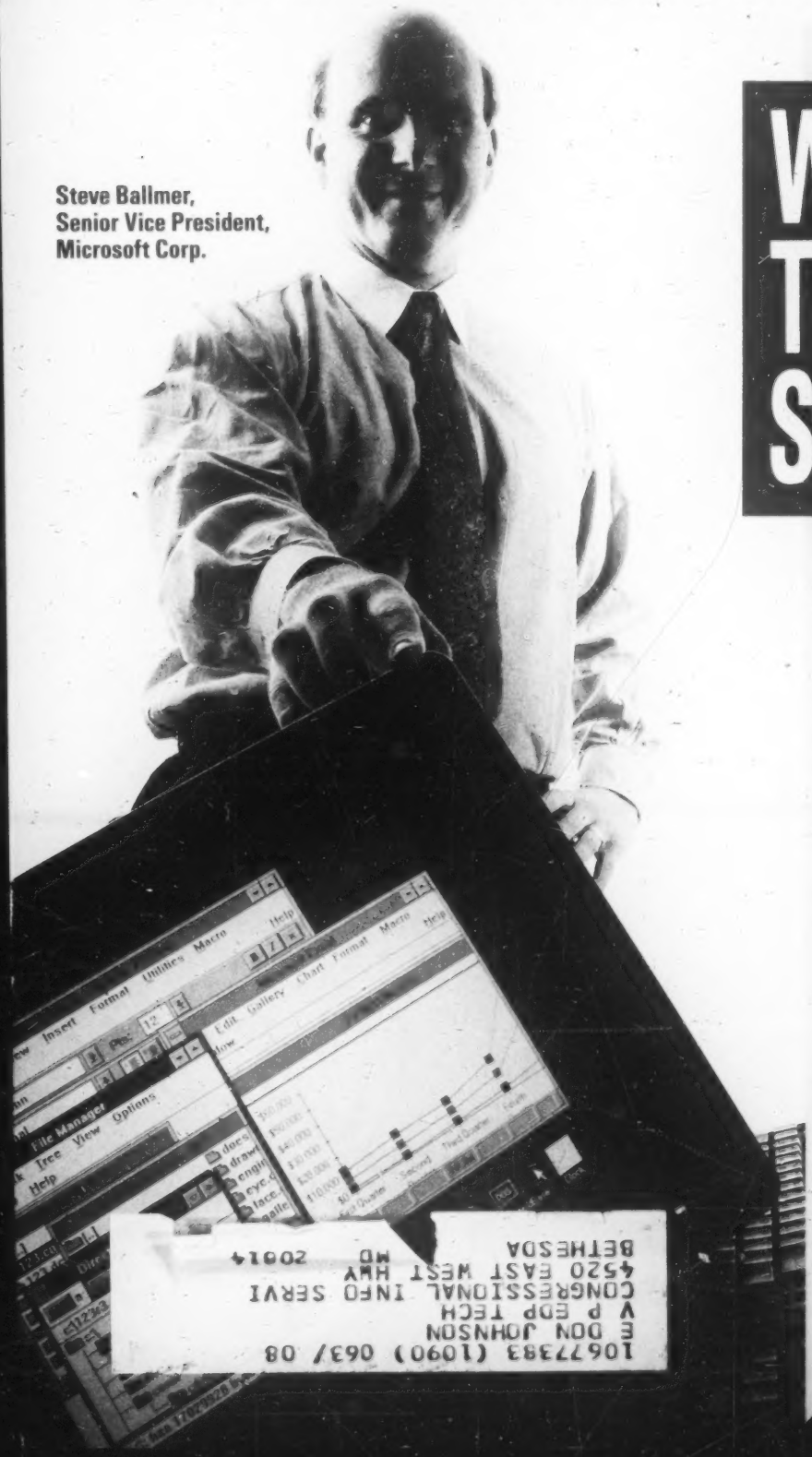

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Microsoft Corp.

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OCTOBER 1, 1990

DATAMATION

FOR MANAGERS OF INFORMAT... ...LDWIDE

VOLUME 36
NUMBER 19

Microsoft's Windows 3.0 draws renewed interest from the IS community.

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Windows 3.0: The Corporate Standard 30

BY JEFF MOAD After five years of trying, Microsoft has scored a corporate hit with Windows 3.0. But with OS/2 slowed to a crawl and DOS suddenly reinvigorated by Windows, IS managers are asking: Where do we go from here?

Cover photography by Dale DeGabriel

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BY DAVID STAMPS So what if many early users of DB2 couldn't find their own grandmothers in the NYC phone directory? DB2's still selling like hotcakes. And a whole new software support industry is rising up to help you keep up.

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The New DATAMATION

"When all is said and done, what this industry is really all about is the creation of useful products to help people do their jobs."

Sounds like a simple statement, doesn't it? Well, it is. But it's more than that. It's elegant, too. The quotation—from Microsoft Corp. chairman Bill Gates—is elegant because its meaning, and its truth, is self-evident: useful products do help people. Indeed.

The quotation also underscores, and reinforces, our own research. You have told us in studies and in face-to-face interviews that you want more useful information about significant products and technologies that can help you do your jobs better. So, beginning with this issue of DATAMATION, we aim to be more useful by focusing on what's really important to you, the IS manager.

(FIRST TIER L. TO R.) New publisher Mike Wisner with new recruits Schlack, Appleton, Lindsey, Pinella, Semich and N.E. bureau manager Ted Bunker; (2nd tier, L. to r.) Sawyer, veteran Brousell and Ricciuti; (front) art director Chris Lewis.

As you can see from this issue's cover, and from the new departments you will find inside this issue of DATAMATION, we have enhanced the magazine by concentrating our editorial attention on the selection and dissection of the critical products and technologies—and we've done it in the interpretative journalistic style you expect of DATAMATION. Our cover stories will spotlight and put into perspective the best hardware, software and communications products. Our expanded product section, now part of the new Product Guide, not only focuses on new products but also provides you with market and supplier data on entire classes of products.

Further, we have enriched the main feature sections of the magazine. Our new PCs & Workstations section will help you cut through and evaluate the many leading edge offerings in desktop computing. And our new Networks section will assist you in linking systems together.

Pretty impressive, you say? Well, that ain't all folks. We have also heard your concerns about lack of time to read the large number of industry publications serving what seems to be every possible technology niche. So in response, we have created Media Report, a two-page department that will give you a digest of news, research and opinion about the IS industry from other publications.

In addition, to better track the financial performance of the IS industry, we introduce an exclusive market statistic geared specifically to IS. In our Market Insights pages, we will follow this economic measure, DATAMATION's unique Information Systems Performance Indicator, assembled by Cahners Economics. A composite of government statistics, the indicator will give you the big picture of economic trends in IS. At the same time, Cahners's Business Research Group each issue will let you know what emerging technologies your peers are considering.

And now a word about the decentralized organization we have put into place to enable DATAMATION to provide all of this to you. We have devised a management structure staffed with senior editors and teams of writers oriented around specific technologies. Senior editors Paul Pinella, Mark Schlack, Bill Semich and Elaine Appleton are in charge of the PCs & Workstations, Networks, Software and Systems sections of the magazine, respectively, with Appleton also leading our International Edition efforts. Senior editor Bob Sawyer and assistant editor Mike Ricciuti run the Product Guide section. And editorial researcher Sarah Lindsey shepherds Media Report.

As we start our 34th year with this issue, it's a new DATAMATION: better positioned editorially, better structured and better equipped to help you do your job. And isn't that what it's all about?

David R. Brousell, Editor

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The New Power of the HP LaserJet III

Hewlett-Packard has beefed up its LaserJet printer with features like font scaling and resolution enhancement. Now HP is giving competitors selling PostScript-based printers a run for their money.

BY ALAN BRODY

Users aren't likely to buy an HP LaserJet laser printer because of its internal page description language—even Hewlett-Packard Co., its manufacturer, will admit that. In fact, few users have reason to know it exists.

Rob Davis, PC training coordinator for New York City-based Condé Nast Publications Inc., is responsible for the company's 200 HP LaserJets. The only time he even thinks about page description languages, he says, is "if we are doing something specific like graphics, presentations and desktop publishing. Then we have to use PostScript printers." For Condé Nast, that can mean buying printers from companies like Mobile, Ala.-based QMS Inc. or Cupertino, Calif.-based Apple Computer Inc. or adding PostScript cartridges, extra memory and printer ports to its LaserJets.

But with HP's LaserJet III, introduced in February 1990, users are beginning to recognize the HP printer's page description language as a significant feature in its own right. The LaserJet III uses PCL 5, the new version of the LaserJet machine language that builds the raster, or internal image of the page. With PCL 5, some analysts say, the Palo Alto company could take away sales from Adobe Systems Inc.'s PostScript, which is too powerful and too expensive for most offices.

"The LaserJet is popular in the office because it is faster than PostScript [driven printers]," says Christine Rivera, a New York City consultant who advises corporations on printer purchases.

"The LaserJet line has captured 65 to 70% of the low-end laser printer market," says Mark Boer, market analyst for BIS CAP International, a Norwell, Mass., market research firm. He estimates that the laser printer market, worth $3 billion in 1989 with over a million units shipped, will grow by more than 20% in 1990 to $3.7 billion or 1.3 million units.

Last year HP had 62.9% of the U.S. market in 8- to 10-page-per-minute printers according to Angele Boyd, manager of printer research for Framingham, Mass.-based market research group International Data Corp. (IDC). Apple ran a distant second, with 15.1%. According to BIS CAP, PostScript-based printers make up about 20% of the laser market, driving Apple's LaserWriters, printers that produce slides, desktop-publishing systems and typesetters.

The $2,395 LaserJet III 8-page-per-minute (ppm) printer comes with 22 fonts (versus 14 on HP's $2,695 LaserJet II) and one megabyte of random access memory. With the LaserJet III's scalable font feature, users can increase font size in quarter-point increments from .25 points to 999.75 points without having to buy additional font cartridges. Says consultant Rivera, "Scalable typefaces are what users really want."

Sharper Image

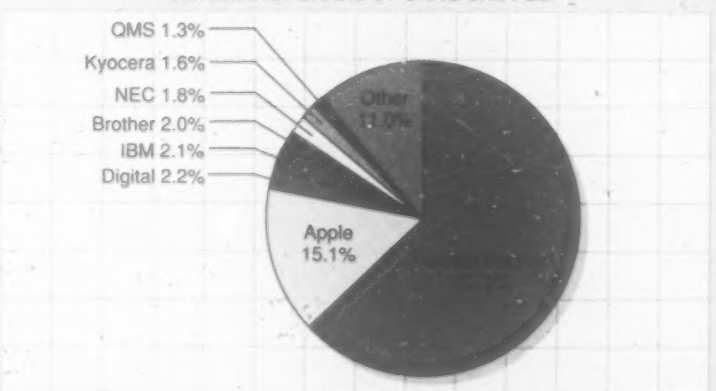
The LaserJet III also offers resolution enhancement, a custom application specific integrated circuit (ASIC) chip that smooths image edges by moving dots to the left or right or by printing them smaller. To BIS CAP's Boer, this 300 dot-per-inch (dpi) printer produces type that "looks more like 600dpi."

Aside from helping to produce better fonts, resolution enhancement boosts the LaserJet's graphics power, says Clay Young, who worked on it's development at HP. With PCL 5 features like arbitrary rotation of text and graphics, the LaserJet can compete with printers that use

HP Commands the Laser Printer Market

In the 8- to 10-page-per-minute laser printer market, Hewlett-Packard rules the roost.

U.S. MARKET SHARE OF UNITS SHIPPED



Source: International Data Corp.

NEW FEATURES OF THE HP LASERJET III, such as font scaling, attract former admirers of PostScript printers.

PostScript. "PCL 5 is supposed to do about 90% of what PostScript does," says Boer.

Missing, however, from the LaserJet III's PCL 5 are PostScript's advanced graphics features such as bezier curves and splines. These shapes require infinitely smooth, mathematically correct curves with constant line weights and arbitrary clipped paths that allow cropping of one shape when placing it within another. Nor does PCL 5 handle color information. But to most observers, these are the specialized needs of publishing professionals, not of the general business world. Although its graphics power doesn't match that of PostScript, LaserJet III does well with bit-mapped images (direct printing of the screen image) and vector graphics (drawings that consist of graphic primitives such as circles and triangles).

Until recently PostScript-based competitors to the LaserJet III usually started at $3,000 to $4,000. Now Dallas-based Texas Instruments Inc. comes closest to the LaserJet III's price tag, offering a 6ppm printer that lists for $2,495. QMS makes a 4ppm PostScript printer for $2,795 and an 8ppm model for $2,995. The 4ppm Apple Personal NT LaserWriter lists for $3,299, and Apple's 8ppm IINT lists for $4,495.

HP's aggressive pricing has had a lot to do with its commanding share of the market. IDC's Boyd says HP is not simply targeting competitors' customers; it is also wooing the customer eying cheaper impact printers. If HP lowers its LaserJet prices enough, surmises Boyd, laser printers will attract a larger segment of the printer market. "People won't pay 50% of their CPU price for their printers, but they will pay 25%. And the closer HP gets to that number the more units they sell."

Even if PCL 5 does not match PostScript's sophistication, it has finally achieved the level of respectability that HP wanted but did not garner when it introduced the LaserJet II in 1984. Then, rather than offer Adobe's PostScript, over which HP would have exercised little control, HP offered Xerox's DDL printer language at an additional cost. DDL, which provided font-scaling technology to match PostScript's but little of its graphics, failed to catch on.

HP was forced to license PostScript from Adobe and offer it in an add-on board through third-party QMS. In order to add fonts, most customers settled for this hardware option or purchased "downloadable" software fonts.

HP Steamrolls Competition

Few companies dare to compete directly with HP. As Terry Harbin, director of corporate communications at QMS, says, "It's very difficult to compete with HP in PCL printers—they have incredible economies of scale."

Instead, companies like QMS compete by offering a wider range of features and by addressing specialized markets. QMS focuses on printers that combine PostScript with PCL and HP-GL (HP's graphics language). QMS offers automatic switching between languages through its Emulation Sensing Processor, an expert system on a chip that parses the data stream and identifies PostScript, PCL or HP-GL. This feature addresses the mixed platform network, which Harbin estimates is 70% PCs and 30% Apple Macintoshes, where switching the printer from one emulation to another currently must be done manually.

Other companies have moved away from the laser technology of the Canon SX printer engine that underlies the LaserJet. Instead, they're using technology that employs a light-emitting diode (LED) as a dot-by-dot gate though which light passes. The $3,995 Qume CrystalPrint Publisher II uses the Casio LCS-130B LED engine with a PostScript clone and a reduced instruction set computing (RISC) processor that can significantly improve the printer's speed. Okidata also offers LED printers, but because of HP's overwhelming share of the laser market, it not only offers PCL emulation but calls its nonlaser printer the OkiLaser.

No one expects PCL 5 to go head-to-head with PostScript anytime soon. Indeed, HP's own PostScript cartridge has been selling well at $695, despite its requirements for additional memory ($495 for 1 megabyte) and an AppleTalk port ($275). But the influence of the LaserJet's installed base of more than two million users, combined with PCL 5's "good enough" graphics, may easily supplant PostScript for all but the most demanding of users. "We see PostScript reverting to what it was intended to be, which is a high-end graphics program," says BIS CAP's Boer.

One barrier to HP's attempts to sell PCL 5 to sophisticated graphics users is that PostScript is device independent. Unlike PCL code, it can be encapsulated into a stand-alone program and ported to any PostScript printer. Since PostScript has become a standard among high-end lasers, color printers and typesetters, 300dpi office printers such as the LaserJet III are now used to proof work that will be produced in final form on powerful 2,450dpi or higher printers. The LaserJet continues to become more sophisticated, however. "We expect to see PCL typesetters," says HP's Young.

In the meantime, HP's users mostly ignore the technical bounty provided by its page description language. So wary has HP been to drown customers in a sea of information that Berkeley McKennon, Ziff Communications' director of business systems and an accomplished PostScript programmer, says, "No one has really drawn [PCL 5's abilities] to my attention." His only clue to new power PCL's was the printer's manual, which he describes as "frightenningly thick."

Alan Brody is a New York City-based freelance writer.

DATAMATION October 1, 1990

IN FOCUS

LaserJet III

Hewlett-Packard Co.
Palo Alto, CA 94303
Reader Circle No. 150

Features

- 8 pages per minute
- 300 dots per inch (dpi)
- HP PCL 5 page description language
- HP Resolution Enhancement
- 8 internal scalable fonts
- 1 MB memory, with slots available for additional 4 MB

Benefits to IS

- Text and graphics have clean edges
- Fast font scaling up to 999.75 points
- Flexible layout orientations, such as same-page landscape and portrait
- Rotation of text and graphics

Sun Microsystems hopes that its SPARCstation SLC will become a champion in business markets.

Sun's Office Contender

SUN'S GREG NICASTRO aims to put PCs and X terminals on the ropes with the SPARCstation SLC

BY MIKE RICCIUTI

Without question, Sun Microsystems Inc. is the leader in reduced instruction set computing (RISC) workstations. In 1989 the Mountain View, Calif., company commanded a 55% share of the worldwide RISC workstation/server market, according to International Data Corp. Sales of Sun's SPARCstation 1 workstation, in-

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troduced in 1989, outstripped production capacity for a short time. And that machine's successor, the SPARCstation 1+, is selling strongly.

With a comfortable lead established in the technical workstation market, Sun began to look toward new markets, including businesses, this year. To this end, the company introduced the SPARCstation SLC workstation, which put the power of the SPARC-station 1+ —12.5 million instructions per second (MIPS)—in a compact, less expensive package.

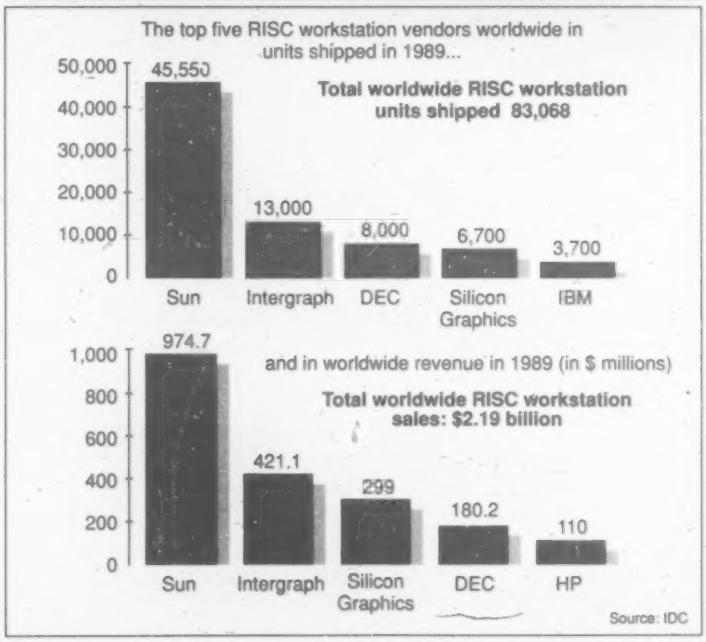
One of the features that make the SLC unique is its design. It's made up of just two pieces—a 17-inch monochrome monitor and a keyboard. The central processing unit, floating point unit, memory, Ethernet and small computer systems interface (SCSI) ports are all contained on one 7×9-inch board mounted in the monitor enclosure.

Another feature, is its price: $4,995 ($3,995 in quantity). That puts the SLC squarely in competition with X terminals, high-end personal computers and Apple Macintoshes.

Sun Dawns on the Business Segment

Along with the new design and low price is a new marketing approach. "We see two target audiences for the SLC. First is Sun's traditional customers, like software engineers," says Greg Nicastro, product manager for the SLC at Sun's desktop systems and graphics group in Boston.

"Second, we see the SLC in an emerging market for Sun—business applications." Nicastro says the SLC is targeted at spreadsheet, database and desktop publishing applications—uncharted waters for the company—as well as at Sun's traditional users.



DATAMATION October 1, 1990

IN FOCUS

SPARCstation SLC

Sun Microsystems Inc.
Mountain View, Calif.

Base Price: $4,995
Circle No. 199

Product Features:
- 12.5 MIPS processing power
- High-resolution 17-inch monitor
- Compact, two-piece design
- OPEN LOOK graphical interface

Key Benefits for IS:
- Easily networked via built-in Ethernet
- Silent operation
- Low cost
- Bundled software

But Sun's penetration into markets other than technical and engineering may take a while, says Tom Kucharvy, president of Summit Strategies, a Boston computer industry market research group. "It will depend on the availability of applications. I don't think Sun expects to displace PCs in office applications for some time," he says.

In Sun's bread-and-butter technical market, though, the SLC stacks up just fine, says Jack Thompson, manager of Cray Research Inc.'s workstation resources group. After beta testing the SLC for several months, Thompson decided to replace his department's desktop network with SLCs.

"Before we went with the SLC, we looked at X terminals and decided that the SLC gave us more for the money," says Thompson. So far, Cray has installed more than 500 SLCs.

An Alternative to X Terminals

Ed Keegan, director of development and operations at New Haven, Conn.-based Yale University's department of computer science, beta tested an SLC as a diskless client off a server.

"We tried out X terminals, but we weren't satisfied with the performance. For the same money, you can go out and buy a machine like the SLC, which runs faster," Keegan says.

Both Keegan and Thompson admit that SLC users say they miss a color display, and Keegan says a local floppy-disk drive would help. But Sun has already responded to that wish. In July the company announced the SPARCstation IPC, which sports a 16-inch color monitor and floppy-disk drive for $9,995.

"We've positioned the SLC as a low-cost network node for applications where color isn't important," says Sun's Nicastro.

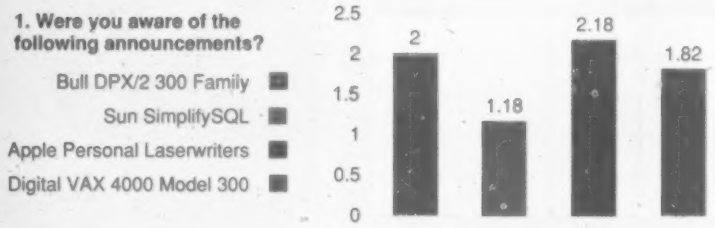
Laura Canigliaro, an analyst at Prudential Bache Securities Inc. in New York City, thinks many buyers agree with Sun. "I didn't think Sun would ship as many SLCs as they have, but they have obviously found a niche. They are going head-to-head with X terminals and high-end PCs, and so far they have no direct competition. The SLC has definitely dealt a blow to those machines in the engineering area."

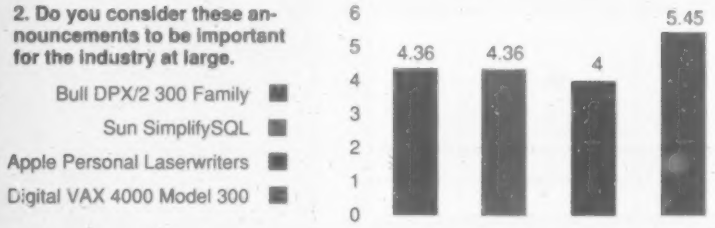
Digital's VAX 4000 Scores Well

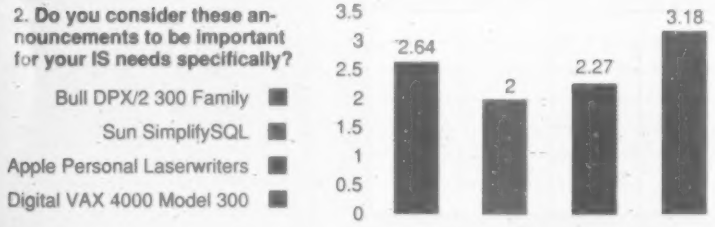
USER PRODUCT REVIEW

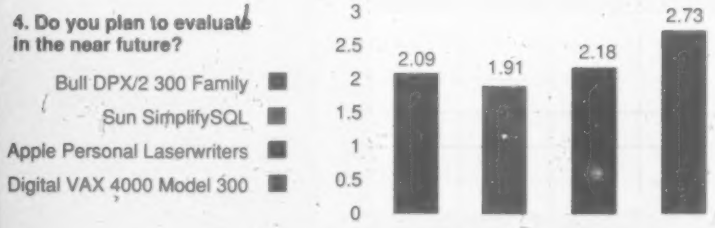
Pick of the Pack

The DATAMATION Review Panel was asked the following four questions for each product and asked to respond on a scale of 1 to 10, with 10 being the highest level of response. The results represent the average of all responses for each question.









The Lineup

Digital Equipment Corp. of Maynard, Mass., introduced the VAX 4000 model 300 in July, a mini-VAX that provides the power and performance of a midrange computer in a system the size of a two-drawer file cabinet. The new VAX is available in both server and time-share models and is priced from $79,900.

CIRCLE NO. 180

Bull HN Information Systems Inc. of Billerica, Mass., introduced four new systems in June, including two entry-level systems and two mainframes. The new systems are all UNIX-based and include the company's first reduced instruction set computing (RISC)-based system. Prices on the new systems begin at $36,000.

CIRCLE NO. 181

Sun Microsystems Inc., of Mountain View, Calif., released SimplifySQL in July, a set of software tools designed to simplify access to and control of Ingres, Oracle and Sybase databases on Sun's SPARCstation workstations. SimplifySQL is priced at $995.

CIRCLE NO. 182

Apple Computer Inc. of Cupertino, Calif., introduced two LaserWriter printers in July for its Macintosh computers. The Personal LaserWriter SC is designed for individual users and is priced at $1,999. The Personal LaserWriter NT is meant for networked applications and is priced at $3,299.

CIRCLE NO. 183

DATAMATION'S User Product Review is conducted twice a month by a panel of the magazine's readers. Panel members base their judgments on published information about each of the products under review. Their responses are sent to DATAMATION by fax. If you wish to join DATAMATION's User Product Review Panel, call Bob Sawyer, Senior Editor, New Products, at (617)-558-4438; write to him at 275 Washington St., Newton, MA 02158; or fax him at (617)-558-4506.

New IS Indicator Reveals Healthy Rate of Orders

Editor's Note: Market Insights is a new department that will appear in every issue of DATAMATION. *In the first issue of each month, Cahners Economics will provide the results of the new* DATAMATION *IS Performance Indicator, which is intended to track the economic health of the information systems industry. In the issue dated the 15th, we will track macroeconomic trends. On the following page in every issue, the Cahners Business Research Group will report on its ongoing survey of how* DATAMATION *readers are implementing new technologies.*

BY MADELINE FRANCHI
Cahners Economics

DATAMATION's newly developed Information Systems Performance Indicator, which is designed to track the health of the IS industry, reached its most recent peak level back in March 1989. Since then, the indicator, which has been calculated as far back as 1984 using historical data, has slowly inched downward. The decline resulted from broad-based weakness in most of the components (see box, "Methodology"). Inventory growth of IS equipment has been shrinking and in May actually dropped below last year's levels. At the same time, business investment in new plants and equipment sank from $41.9 billion in May 1989 to $40.7 billion this past May.

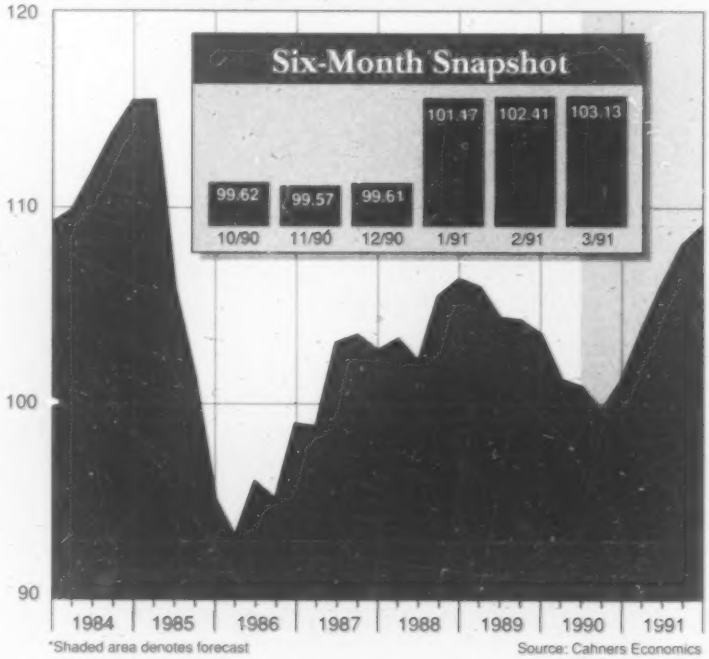
Manufacturers can take some solace in the fact that new orders remain healthy relative to last year's levels. The strength shown here is a good sign: the business cycle will soon hit its low. Cahners Economics predicts that the performance indicator will turn around later this year and head into a sustained recovery through 1991.

Methodology

The DATAMATION Information Systems Performance Indicator is based on weighted moving growth rates for five statistics: 1) IS inventory, 2) new IS orders, 3) average weekly hours of computer industry production workers, 4) Standard & Poor's computer systems stock price index, and 5) contracts and orders for plants and equipment. For more information on Cahners Economics' forecasting services, contact Dan Buchan at (617)-630-2105, by fax at (617) 630-2100 or write him at Cahners Economics, 275 Washington Street, Newton, MA 02158.

The IS Performance Indicator

The health of the IS industry is expected to improve later this year and into 1991.



*Shaded area denotes forecast

Source: Cahners Economics

	May	April	% Change	May 1989	% Change 1990/1989
■ Information-Processing Equipment					
Shipments (SA, $ millions)	9,880	9,852	0.3	9,429	4.8
New Orders (SA, $ millions)	9,902	9,995	-0.9	9,093	8.9
Unfilled Orders (SA, $ millions)	28,602	28,580	0.1	28,605	0.0
Inventory (SA, $ millions)	21,615	21,620	0.0	21,780	-0.8
■ Computer Production Workers					
Employment (NSA, thousands)	125.1	126.3	-1.0	129.0	-3.0
Average Weekly Hours (monthly avg.)	42.2	41.8	1.0	41.4	1.9
■ Stock Index					
S&P's Computer Systems Stock Price Index	191.97	181.58	5.7	189.60	1.3
■ Contracts & Orders					
New Plant & Equipment (SA, $ billions)	40.59	40.67	-0.2	41.9	-3.1

SA= seasonally adjusted;
NSA= nonseasonally adjusted

Sources: U.S. Commerce Dept and Standard & Poor's; forecasts Cahners Economics

How Extensive Is Downsizing?

BY WARREN CHILDS
Business Research Group

Without doubt, the implementation of powerful desktop computers, high-performance micro-based servers and effective local area network (LAN) communications has affected the role of mainframe systems and minicomputers in many organizations. However, the effect of downsized information systems has been greatly exaggerated, according to DATAMATION's new High Technology Panel.

More than 80% of panel members, who are readers of the magazine, agree that some mainframe and minicomputer applications will never be replaced by desktop computers and PC LANs.

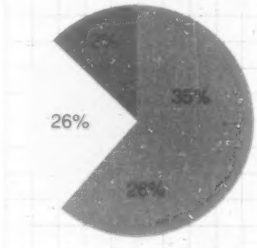
Although many personal productivity applications are being moved from the mainframe to the desktop, large-scale applications that require large databases and support hundreds of users simultaneously will continue to be run on mainframes. Less than half of the panel members say that networked desktop computers have reduced the mainframe's role in their organizations.

Minicomputer systems have been somewhat more affected by micro-based servers taking over their role as departmental computers. In fact, 60% of panel members report a reduced role for minicomputers due to PC LANs.

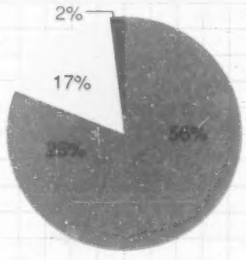
There's Life Yet in Large Systems

Use of mainframe systems within our organization will be reduced as more emphasis is placed on desktop computers and PC LANs.

Use of minicomputer systems within our organization will be reduced as more emphasis is placed on desktop computers and PC LANs.

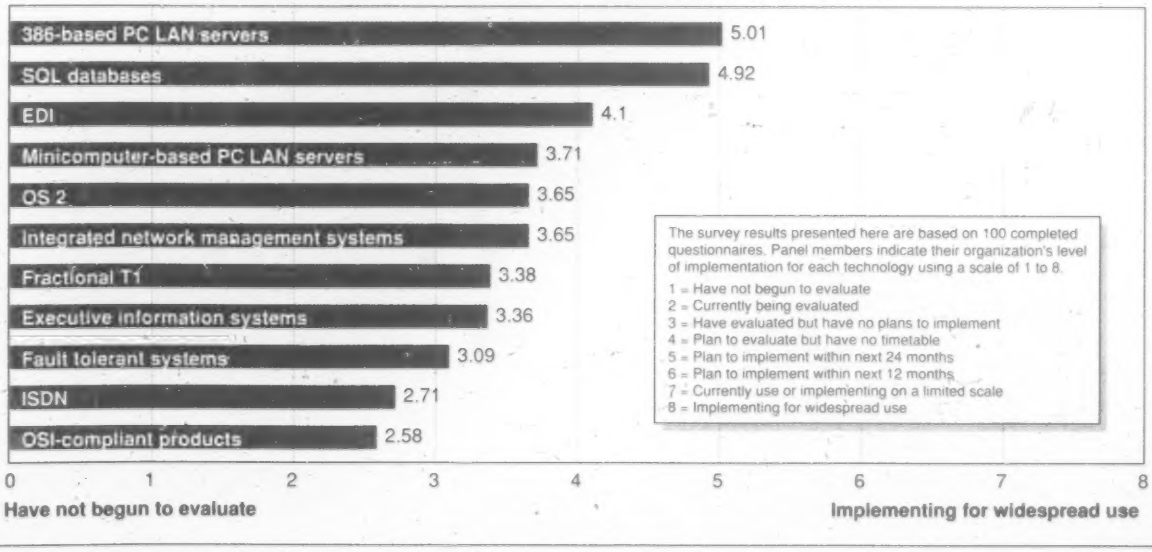


There are some mainframe- and minicomputer-based applications that will never be replaced by PC LANs and micro-based servers.



DATAMATION's Technology Implementation Index

DATAMATION each month surveys a select group of its readers– the DATAMATION High Technology Panel–to investigate the implementation of new technologies by key end-user organizations.


386-based PC LAN servers 5.01
SQL databases 4.92
EDI 4.1
Minicomputer-based PC LAN servers 3.71
OS 2 3.65
Integrated network management systems 3.65
Fractional T1 3.38
Executive information systems 3.36
Fault tolerant systems 3.09
ISDN 2.71
OSI-compliant products 2.58
0 1 2 3 4 5 6 7 8
Have not begun to evaluate
Implementing for widespread use
The survey results presented here are based on 100 completed questionnaires. Panel members indicate their organization's level of implementation for each technology using a scale of 1 to 8.
1 = Have not begun to evaluate
2 = Currently being evaluated
3 = Have evaluated but have no plans to implement
4 = Plan to evaluate but have no timetable
5 = Plan to implement within next 24 months
6 = Plan to implement within next 12 months
7 = Currently use or implementing on a limited scale
8 = Implementing for widespread use